

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 01640454TA	FOR FURTHER ACTION	
see Form PCT/ISA/220 as well as, where applicable, item 5 below.		
International application No. PCT/US05/06788	International filing date (day/month/year) 03 March 2005 (03.03.2005)	(Earliest) Priority Date (day/month/year) 05 March 2004 (05.03.2004)
Applicant VIRGINIA TECH INTELLECTUAL PROPERTIES, INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the Report**

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.



The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).



b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. **Certain claims were found unsearchable** (See Box No. II)



3. **Unity of invention is lacking** (See Box No. III)

4. With regard to the **title**,



the text is approved as submitted by the applicant.



the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,



the text is approved as submitted by the applicant.



the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 3



as suggested by the applicant.



as selected by this Authority, because the applicant failed to suggest a figure.



as selected by this Authority, because this figure better characterizes the invention.



none of the figures is to be published with the abstract.

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Box IV TEXT OF THE ABSTRACT (Continuation of Item 5 of the first sheet)

The technical features mentioned in the abstract do not include a reference sign between parentheses (PCT Rule 8.1(d)).

A method and apparatus are disclosed for separating the functionality of middleware (320) in a device with embedded resources (341, 342) so that data transfer between embedded resources used by an object (330) resident in a general purpose processor (310) of the device takes place directly, thereby minimizing bandwidth overhead at the general purpose processor. The control interface (371, 372) for an embedded resource resides in the general purpose processor and uses the device driver of the embedded resource, whereas the data interface (381, 382) is outside the communication with a switch matrix (360) serving each embedded resource.

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A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G06F 9/54
US CL : 709/310

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 709/310

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,958,009 A (Friedrich et al.) 28 September 1999 (28.09.1999), column 6, lines 47-55, column 5, lines 28-47, column 7, lines 32-47, column 7, lines 48-63.	1, 2
Y	US 6,253,000 B1 (Madsen et al.) 26 June 2001 (26.06.2001), column 4, lines 30-54.	4
Y	US 6,477,174 B1 (Dooley et al.) 05 November 2002 (05.11.2002), column 2, line 63- column 3, line 11.	3, 5
Y	"Abou JTRS", http://jtrs.army.mil/sections/overview/overview.html , paragraph 1 and 2	6
Y	US 5,673,198 A (Lawman et al.) 30 September 1997 (30.09.1997), column 10, lines 42-48 and column 3, line 53-column 4, line 2.	7, 8

<input type="checkbox"/>	Further documents are listed in the continuation of Box C.	<input type="checkbox"/>	See patent family annex.
*	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E"	earlier application or patent published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search	Date of mailing of the international search report
07 July 2005 (07.07.2005)	15 AUG 2005
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer <i>for Michelle L. Eber</i> Meng-Ai An Telephone No. 571-272-2100